

Abstract: Analysis and Compensation of Phase Noise in the MISO SFBC DFT-Spread OFDM Communication System

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Abstract

In the two transmit/one receive antenna configuration, we theoretically analyze and evaluate the phase noise influence on the MISO (multiple-input single output) type DFT-Spread OFDM(orthogonal frequency division multiplexing) system, especially SFBC (space frequency block coding) DFT-Spread OFDM system, then, apply several phase noise compensation method to minimize interference. Simulation results show that in the SFBC DFT-Spread OFDM system, the ICI (inter-sub-carrier-interference) and SCI (self-channel-interference) cannot be neglected because 2×1 SFBC DFT-Spread OFDM even intensifies phase noise influence due to the simultaneous generation of more SCI and ICI than 2×1 DFT-Spread OFDM only, so interference compensation is necessary. It is found that data-conjugate ICI self-cancellation method and symmetric data-conjugate ICI self-cancellation method can achieve considerable performance improvement than SFBC method in 2×1 DFT-Spread OFDM system, besides, data-conjugate method is superior than symmetric data-conjugate method.

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